查询MB4072供应商

FUJITSU SEMICONDUCTOR
DATA SHEET

DS04-13200-3E

LINEAR IC

1 CHANNEL 8-BIT D/A CONVERTER

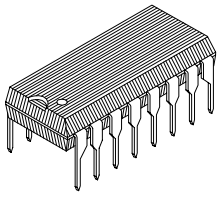
MB4072

1 CHANNEL 8-BIT D/A CONVERTER

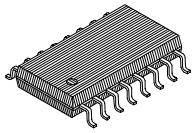
The Fujitsu MB4072 is a High-Speed Digital to Analog Converter IC. The MB4072's current outputs are high impedance open-collector, which provide voltage output with a load or current to voltage converter for various applications with operational amplifiers, microcomputers, etc.

Threshold level of digital inputs is variable with the level control input for various interface level.

- Settling Time : 85ns
- Linearity Error : ±0.19%max.
- Full-scale Temperature coefficient: ±10ppm/°C typ.
- Output Voltage Compliance : -10V to +18V
- Multiplying Operation
- True/Complimentary Current Sink Output
- Adjustable Threshold Level of Digital Inputs :Interface directly with TTL, CMOS, ECL, etc.
- Wide Supply Voltage Range : ±4.5V to ±18V
- Low Power Consumption : 33mW at ±5V typ.
- Operation Temperature : -40°C to +85°C
- Compatible with DAC-08
- Package : Plastic DIP Package: (Suffix: -P)
  Plastic FPT Package: (Suffix: -PF)

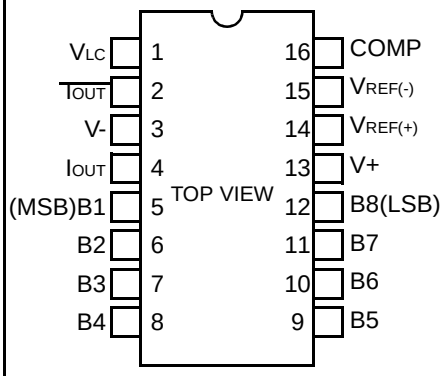


PLASTIC PACKAGE
DIP-16P-M04



PLASTIC PACKAGE
FPT-16P-M06

PIN ASSIGNMENT



■ ABSOLUTE MAXIMUM RATINGS

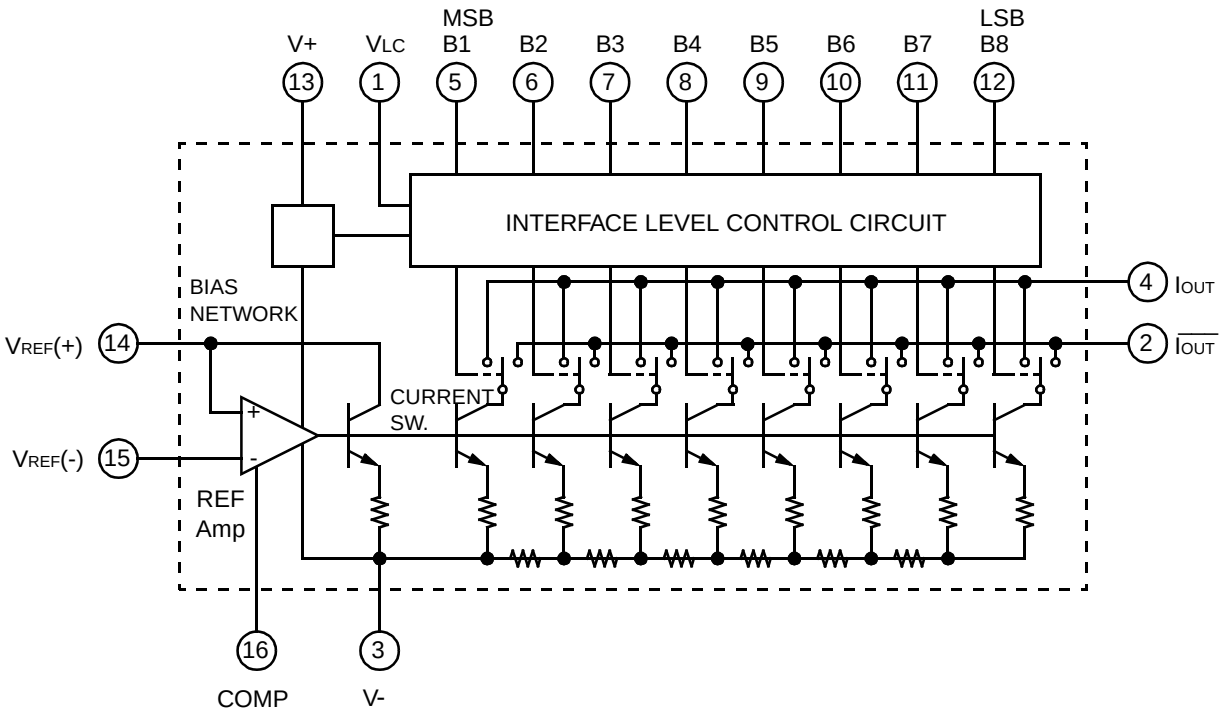
(TA =25°C)

Parameter	Symbol	Value	Unit
Supply Voltage	V+ to V-	37	V
Digital Input Voltage	VI	V- to V- +37	V
Threshold Control Voltage	VLC	V- to V+	V
Reference Input Voltage	VREF(+)	V- to V+	V
	VREF(-)	V- to V+	V
Differential Reference Input Voltage	VREF(+) to VREF(-)	±18.5	V
Reference Input Current	IREF	5	mA
Power Consumption	PD	500	mW
Storage Temp.	TSTG	-55 to +125	°C

NOTE: Permanent device damage may occur if the above **Absolute Maximum Ratings** are exceeded. Functional operation should be restricted to the conditions as detailed in the operational sections of this data sheet. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

This device contains circuitry to protect the inputs against damage due to high static voltages or electric fields. However, it is advised that normal precautions be taken to avoid application of any voltage higher than maximum rated voltages to this high impedance circuit.

Fig. 1 - BLOCK DIAGRAM



■ RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol				Unit
		Min	Typ	Max	
Supply Voltage	V+	+4.5	-	+18	V
	V-	-18	-	-4.5	V
Operating Temperature	T_A	-40	-	+85	°C

■ ELECTRICAL CHARACTERISTICS

(Recommended Operating Conditions unless otherwise noted.)

(V+ = +15V, V- = -15V, I_{REF} = 2.0mA, TA = -40°C to +85°C)

Parameter	Symbol	Value			Unit
		Min	Typ	Max	
Resolution		8	8	8	bits
Monotonicity		8	8	8	bits
Linearity Error	LE	-	-	±0.19	% (FSR)
Settling Time (Final Value: ±1/2 LSB, T_A=25°C, On/Off Switching for Each bit/All bits)	ts	-	85	150	ns
Propagation Delay Time (T_A=25°C, On/Off Switching for Each bit/All bits)	t_{PLH} t_{PHL}	-	35	60	ns
Temperature coefficient at full-scale	TC_{IFS}	-	±10	±50	ppm/°C
Output Voltage Range (ΔI_{FS} 1/2 LSB, R_{OUT} 20MΩ typ.)	V_{OC}	-10	-	+18	V
Output Current at full-scale (V_{REF}=10.000V, R14=5.000kΩ, R15=5.000kΩ, T_A=25°C)	I_{FS4}	1.94	1.99	2.04	mA
Symmetry at full-scale (I_{FSS}=I_{FS4}-I_{FS2})	T_{FSS}	-	±1.0	±8.0	µA
Output Current at zero scale	I_{ZS}	-	0.2	2.0	µA
Output Current Range (R14=5.000kΩ, R15=5.000kΩ, V_{REF}=+15.0V, V-=-10V)	I_{OR1}	2.1	-	-	mA
Output Current Range (R14=5.000kΩ, R15=5.000kΩ, V_{REF}=+25.0V, V-=-12V)	I_{OR2}	4.2	-	-	mA
Low-level Input Voltage (V_{LC}=0V)	V_{IL}	-	-	0.8	V
High-level Input Voltage (V_{LC}=0V)	V_{IH}	2.0	-	-	V
Low-level Input Current (V_{LC}=0V, V_{IN}=-10V to +0.8V)	I_{IL}	-	-0.2	-10	µA
High-level Input Current (V_{LC}=0V, V_{IN}=2.0V to 18V)	I_{IH}	-	0.002	10	µA

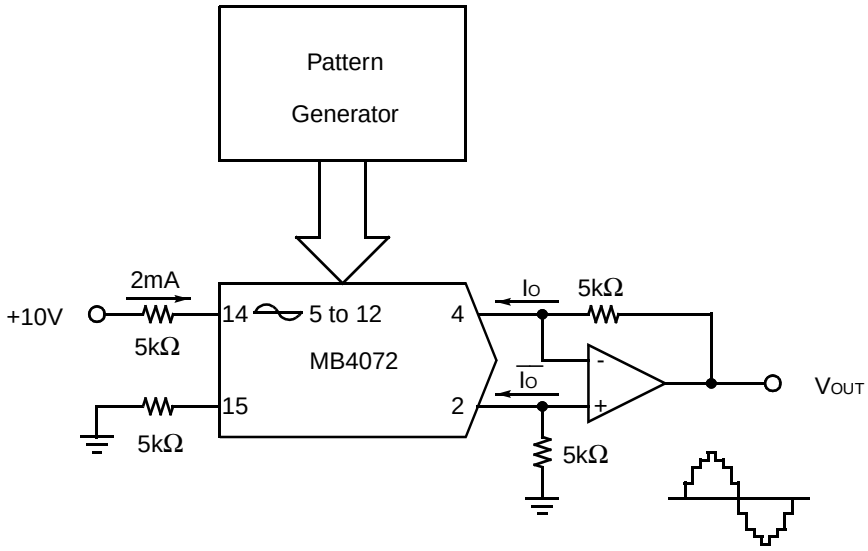
■ ELECTRICAL CHARACTERISTICS (Continued)

(V_S=±15V, I_{REF} = 2.0mA, T_A = -40°C to +85°C)

Parameter		Symbol	Value			Unit
			Min	Typ	Max	
Logic Input Voltage Range (V-=-15V)		V_{IS}	-10	-	+18	V
Logic Threshold Voltage Range (V+=+15V, V-=-15V)		V_{THR}	-10	-	+13.5	V
Reference Bias Current		I_{15}	-	-1.0	-3.0	µA
Reference Input Through Rate (R_{EQ}=200Ω, R_L=100Ω, C_L=0pF)		$\frac{dI}{dt}$	4.0	8.0	-	mA/µs
Supply Voltage Sensitivity* (V+=+4.5V to +18V, I_{REF}=1mA)		$PSSI_{FS+}$	-	±0.0003	±0.01	%/%
Supply Voltage Sensitivity* (V-=-4.5V to -18V, I_{REF}=1mA)		$PSSI_{FS-}$	-	±0.002	±0.01	%/%
Supply Current	(V-=+5V, V-=-5V, I_{REF}=1.0mA)	I_-	-	2.3	3.8	mA
		I_-	-	-4.3	-5.8	mA
	(V+=+5V, V-=-15V, I_{REF}=2.0mA)	I_-	-	2.4	3.8	mA
		I_-	-	-6.4	-7.8	mA
	(V+=+15V, V-=-15V, I_{REF}=2.0mA)	I_-	-	2.5	3.8	mA
		I_-	-	-6.5	-7.8	mA
Power Dissipation	(V+=+5V, V-=-5V, I_{REF}=1.0mA)	P_D	-	33	48	mW
	(V+=+5V, V-=-15V, I_{REF}=2.0mA)	P_D	-	103	136	mW
	(V+=+15V, V-=-15V, I_{REF}=2.0mA)	P_D	-	135	174	mW

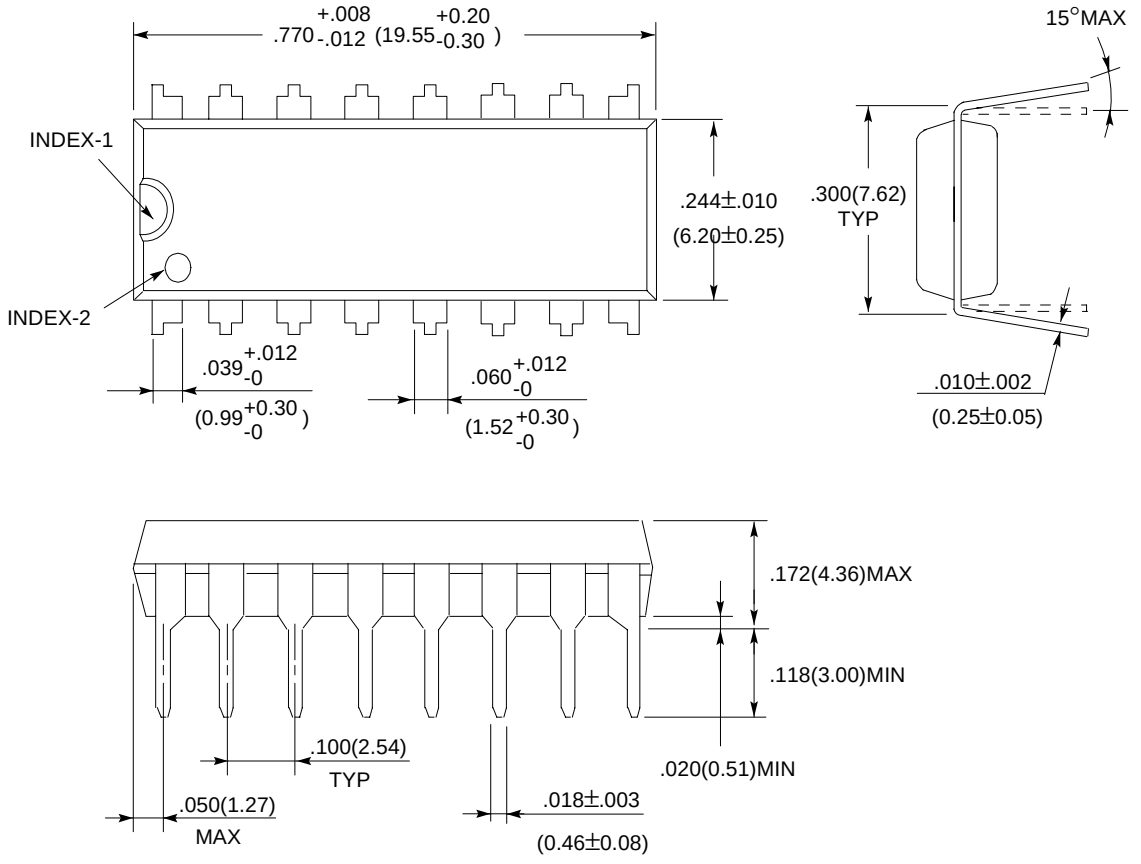
***Note:** $PSSI_{FS}=(\frac{\Delta I_{FS}}{I_{FS}} \times 100) / (\frac{18-4.5}{15} \times 100)$

Fig. 2 - WAVEFORM SYNTHESIZER



■ PACKAGE DIMENSIONS

16-LEAD PLASTIC DUAL IN-LINE PACKAGE
(Case No.: DIP-16P-M04)



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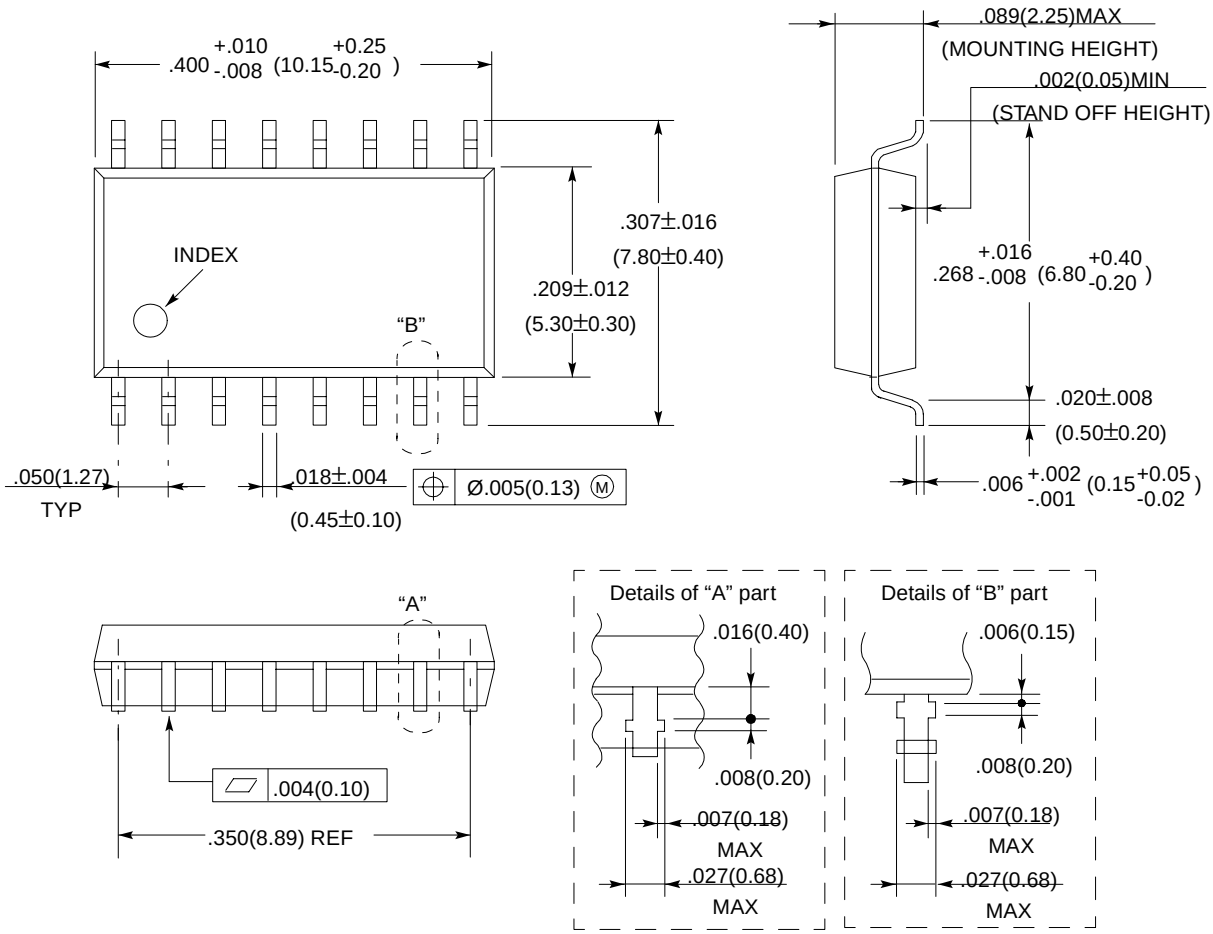
Dimensions in
inches (millimeters)

■ PACKAGE DIMENSIONS (Continued)

16-LEAD PLASTIC FLAT PACKAGE
(Case No.: FPT-16P-M06)



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Dimensions in
inches (millimeters)

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